

EXHIBIT 221

**IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

DONNA CURLING, et al.

Plaintiff,

vs.

BRAD RAFFENSPERGER, et al.

Defendant.

**CIVIL ACTION FILE NO.:
1:17-cv-2989-AT**

DECLARATION OF PHILIP B. STARK

PHILIP B. STARK hereby declares as follows:

1. This statement supplements my declarations of September 9, 2018; September 30, 2018; October 22, 2019; December 16, 2019; August 23, 2020; August 31, 2020; September 13, 2020; and August 2, 2021. I stand by everything in the previous declarations and incorporate them by reference.

Qualifications and Background

2. I am Professor of Statistics at the University of California, Berkeley, where I am also a faculty member in the Graduate Program in Computational Data Science and Engineering; a co-investigator at the Berkeley Institute for Data Science; principal investigator of the Consortium for Data Analytics in Risk; director of Berkeley Open Source Food; and affiliated faculty of the Simons Institute for the Theory of Computing, the Theoretical Astrophysics Center, and the Berkeley Food Institute.

and among the first approved for credit throughout the ten campuses of the University of California system. I also developed and co-taught online statistics courses to over 52,000 students, using an online textbook and other pedagogical materials I wrote and programmed.

21. Appendix 1 is my current *curriculum vitae*, which includes my publications for the last ten years and all cases in the last four years in which I gave deposition or trial testimony.

Opinions

22. I have been asked to assess whether the State of Georgia's current Dominion Ballot Marking Device ("BMD") voting system and the protocols for its use—including audits—provides reasonable assurance that voters' selections will be counted, and counted as cast. The answer is a clear "no."

The 2020 "Audit"

23. Georgia Secretary of State Brad Raffensperger has claimed, referring to the post-election audit of the November 3, 2020 presidential contest, "Georgia's historic first statewide audit reaffirmed that the state's new secure paper ballot voting system accurately counted and reported results."⁴ And "[] we did a 100 percent risk-limiting audit with a hand recount which proved the accuracy of the count and also proved that the machines were accurately counting it, and that no votes were flipped."⁵

VotingWorks Executive Director Ben Adida claimed "Georgia's first statewide audit

⁴https://sos.ga.gov/index.php/elections/historic_first_statewide_audit_of_paper_ballots_upholds_result_of_presidential_race, last accessed 9 January 2022

⁵ <https://www.effinghamherald.net/local/raffensperger-spread-election-misinformation-bipartisan-endeavor/> last accessed 9 January 2022.

successfully confirmed the winner of the chosen contest and should give voters increased confidence in the results.”⁶ Per the official report of the audit, “The audit confirmed the original result of the election, namely that Joe Biden won the Presidential Contest in the State of Georgia. The audit [] provides sufficient evidence that the correct winner was reported.”⁷ I shall explain why these claims about the audit are false.

24. There are many things the audit did not check (including the outcome), and the thing it was positioned to check—the tabulation of validly cast ballots—was not checked properly, as data from the audit itself show.
25. I shall start by listing some things the audit did not check. My statements are true and correct to the best of my knowledge, and they are consistent with the audit documentation available at the Secretary of State’s website at the URL https://sos.ga.gov/index.php/elections/2020_general_election_risk-limiting_audit (last accessed 9 January 2022).
26. The audit did not check whether BMDs correctly printed voters’ selections. No audit can check that, as I have previously declared. (As a consequence, Secretary Raffensperger has no basis to assert that no votes were flipped.) The declarations and testimony of Prof. J. Alex Halderman establish that BMDs can be hacked, misprogrammed, or misconfigured to print votes that differ from voters’ selections as confirmed onscreen or through audio. As Prof. Andrew Appel has testified and as elaborated in my declarations, only the voter is in a position to check—but few do, and

⁶ Ibid.

⁷ https://sos.ga.gov/admin/uploads/11.19_20_Risk_Limiting_Audit_Report_Memo_1.pdf, last accessed 9 January 2022

those who do check generally check poorly. To the best of my knowledge, the State of Georgia has no procedures in place to log, investigate, or report complaints from voters that BMDs altered votes, so it is not clear whether any voters did notice problems. My previous declarations also explain why logic and accuracy testing can never be adequate to establish that BMDs behave correctly in practice.⁸

27. The audit did not check whether every validly cast ballot was scanned exactly once.

The audit could not check whether every validly cast ballot was scanned, because Georgia's rules for ballot accounting, pollbook and voter participation reconciliation, physical chain of custody, etc., are not adequate to ensure that every cast ballot is accounted for.

28. The audit did not check whether every memory card used in the election was accounted for, nor whether every memory card containing votes was uploaded to a tabulator. The audit found that some had not been,⁹ but to my knowledge, there has been no check to confirm there are no other cards with votes outstanding.

29. The audit did not check whether any scans were duplicated, deleted, replaced or altered.

30. The audit did not check whether QR code encoding the votes on BMD printout matches the human-readable selections on any ballot.

⁸ See, e.g., Stark, P.B. and R. Xie, 2019. Testing Cannot Tell Whether Ballot-Marking Devices Alter Election Outcomes, ArXiv, <https://arxiv.org/abs/1908.08144>, last accessed 9 January 2022.

⁹ See notes 13 and 14, *infra*.

31. The audit did not check whether the voting system correctly interpreted any ballot or BMD printout. (Again, as a consequence, Secretary Raffensperger has no basis to assert that no votes were flipped.)
32. The audit did not do a very good job of checking the tabulation, as I shall explain. I focus on Fulton County. I have not investigated other counties, but I have no reason to believe the problems and errors are confined to Fulton County. I have been told by Coalition Plaintiffs that similar problems occurred in other counties, but I have not independently verified their findings.
33. I downloaded the detailed “audit spreadsheet” from the URL <https://sos.ga.gov/admin/uploads/audit-report-November-3-2020-General-Election-2020-11-19.csv> on 9 January 2022.
34. I downloaded images of the Fulton County RLA manual tabulation batch sheets (“Audit Board Batch Sheets”, ABBs henceforth) from <https://sos.ga.gov/admin/uploads/Fulton%20RLA%20Batches.zip> on 9 January 2022. That file contains five .pdf files, “Fulton Audit Documents 1_redacted.pdf,” through “Fulton Audit Documents 4_redacted.pdf,” which contain images of ABBs, and “Fulton Audit Documents 5.pdf” which contains images of “Vote Review Panel Tally Sheets.”
35. My understanding is that ABBs are filled in by hand by the counting teams who counted the votes from the paper ballots (including BMD printouts). Each ABB reflects the manual tally of votes from one physically identifiable batch of ballots. I understand that after the ABBs were filled out, other workers transcribed data from the ABBs into VotingWorks audit software “Arlo.” My understanding is that every

50. While human error almost certainly accounts for *some* of the difference, there is no evidence that it accounts for most of the difference, much less the entire difference, as Secretary of State Raffensperger claimed.

51. The original count and audit agree with each other (but not with the recount) regarding the number of votes for Biden and Jorgensen. The audit found 50 more votes for Trump than the original tally, and 81 more than the machine recount found: a difference of almost 50 percent. These differences have not been investigated and are unexplained. A hypothesized error rate of 2 percent in hand counts does not suffice.

52. A fact central to this case is that the differences might result from discrepancies between the QR-encoded votes and the human-readable votes on BMD printout and/or from misconfiguration, bugs, or malware on the scanners or tabulators. As discussed above, the audit checked none of these things. There is no basis whatsoever to conclude that the differences result entirely from human error without investigating the other possibilities.

53. The hand count could easily be more accurate than the machine count. Indeed, it is well known that hand counts of hand-marked paper ballots are often more accurate than machine counts, in part because human readers can interpret light, improper, and ambiguous marks better than machines can, even when the machines are working properly. Similarly, experience in Georgia in 2020¹⁸ shows that Dominion's scanner settings (low resolution, black-and-white) can cause voters' selections not to appear at

¹⁸ See, e.g., Judge Amy Totenberg's Opinion and Order of 11 October 2020 in the present matter, at 4, 30, 95, 101, 103, 114–135.

I declare under penalty of perjury, in accordance with 28 U.S.C. § 1746, that the foregoing is true and correct.

Executed on this date, 11 January 2020,

A handwritten signature in blue ink, appearing to read "Philip B. Stark", is written over a horizontal line.

Philip B. Stark